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Seychelles, with a population of 81,000, comprises an archipelago of some 115 granitic and coralline islands which lie in the western reaches of the Indian Ocean. The largest Island is Mahé. It occupies a land area in excess of 455 km². Mahé lies some 1600 kilometres off the eastern coast of Africa and some 800 km north of Madagascar. Seychelles was granted independence from Britain in 1976 being ceded to Britain from France as reparations following the Napoleonic wars. Over 98% of the population profess the Christian religion and there is no religious strife on the islands. Victoria (pop 23,000) is the administrative capital of the Republic of Seychelles. Seychelles is serviced by regular flights from Dubai, London, Paris, Singapore and other European hubs and is a very popular tourist destination. There is one international airport and over a dozen smaller domestic airports, eight of which are paved. Victoria has an impressive deep-water port capable of supporting oil-field operations. Tourism, fishing (tuna) and supply of bunker fuel are the three main sectors that drive the local economy. PetroQuest permits are shown in grey and totals almost 23,000 km², while the Economic Exclusive Zone (outlined in red) covers 1,33 million km².



License policy

The legal system is largely based on English Common Law. The Economic Exclusive Zone (EEZ) comprises some 1.33 million square kilometres of territory, which is largely ocean. Oil exploration licensing is via a model agreement with the government of Seychelles and SEPEC (Seychelles Petroleum Company). Licences are extended out over 10 years and company tax is payable at 35%. Profit oil tax is via negotiation. There is a 5% royalty payment on oil production. The Seychelles government is development focused and is considering plans for a gazettal round in late 2006.

An oil prone frontier basin

Situated in warm azure waters of the Indian Ocean well outside the cyclone belt, Seychelles boasts one of the most pristine natural environments on the planet and offers a holiday experience that represents a powerful antidote to the demands of every day living. From sculpted granite boulders, coral reefs, untouched forests and bird sanctuaries to private resorts and exotic hideaways, visitors are 'spoiled for choice' when it comes to visiting easily accessible island venues. The Seychelles islands also boast a rich bio-diversity of both flora and fauna and has, in the past, been compared favourably to the Garden of Eden. Over 700 species of flowering plants have been identified on the inner granitic islands, and an additional 400 species are observed on the outer coralline islands. The World Bank is currently funding a bio-diversity study to the tune of USD 1.8 MM, this money being used to ensure sustainable development projects are conceived in Seychelles.

A multitude of geological data suggests that the petroleum system is in place. Rich, voluminous source rocks, likely migration paths, good reservoir rocks and huge traps all make the Seychelles offshore basins a tempting target for companies ready to explore a frontier province.

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By the end of 1996, due to the low oil price, all commercial exploration activity ceased in the Seychelles. However, against the backdrop of the current high oil price environment, interest levels in the Seychelles have been rekindled.

Currently, US independent PetroQuest International holds the only exploration license in the Seychelles. Covering some 23,000 km², the company is controlling an area that equals approximately four North Sea quadrants. PetroQuest International acquired the acreage following a promote by Albatross Energy Pty Ltd who identified the area as an over-looked petroleum province as suggested by the Seychelles National Oil Company (SNOC, latterly SEPEC).

Next to Billions of Barrels

The Mahé Island, including the Port of Victoria – the administrative centre – which boasts a spectacular backdrop of near vertical late Precambrian granite cliffs over 900 m high, is granitic in character and gives no clue to the petroleum potential of the offshore.

Generations of geologists have been puzzled by the fact that granitic plutons exist in the midst of the Indian Ocean. A bathymetry map provides insight to this conundrum. Approximately 60,000 km² area of ocean, the Seychelles Plateau, have water depth less than 200 m.

The explanation for the presence of the granitic plutons is fairly straight forward once we consider plate tectonic reconstructions for this part of the world.

Drilling activity on the Seychelles Plateau in the early 1980's confirmed that the Seychelles Plateau area is a drowned micro-fragment of Gondwanaland, a super-continent that lay to the south of the Tethys Ocean 225 Ma (million years ago). At this time the Seychelles is understood to have been conjugate to both Northern Madagascar and India. During the break-up of Gondwanaland, commencing 200 Ma, a portion of continental crust that underlies the Seychelles became detached from both India and Madagascar by the opening of the Carlsberg Ridge. As the Seychelles fragment detached it moved and

rotated along a sinistral wrench fault system which now adjoins the northern tip of Madagascar.

The plate reconstructions nicely show the geological closeness of the proven petroleum systems in both India and Madagascar. In India, the prolific Bombay High oil province has proven some 3 billion bbls of Tertiary derived oil in place. In Madagascar, there are billions of barrels of heavy 8-13° API crude in exhumed reservoirs (Belomanga tar sands with 22 billion bbls and Tsimiroro oil sands with 8 billion bbls, both within the Morondava Basin).

Four Exploration Wells

The juxtaposition of the allochthonous continental terrane, upon which Seychelles is founded, has prompted interest from a significant number of major oil companies since the 1970's. First, Mobil investigated the possibility of exploring for oil in the Seychelles. Later, in the latter part of the 70's, a consortium led by the Burmah Oil Company chased up interests in the waters around the Seychelles.

In 1980-81 Amoco decided to test the theory that continental crust extends below the Seychelles Plateau by drilling three wells: **Reith Bank-1** (no seal present at top Karoo), **Owen Bank-1** (did not reach the objective) and **Seagull Shoals-1** (no depth closure identified in the post well mapping). These wells were unfortunately spatially clustered together, just testing the extreme western corner of the platform area.

The **Reith Bank-1** well drilled over 1900 m of non-marine intercalated sandstones and mudstones of inferred upper Triassic to Lower Jurassic age, this succession pertaining to the Karoo Supergroup. The drilling of such considerable thicknesses of sedimentary rocks proved beyond doubt that the Seychelles Plateau is underpinned by continental crust.

The **Owen Bank-1** well penetrated a similar thickness of Cretaceous and Middle Jurassic mudstones and sandstones.

Finally, **Seagull Shoals-1** drilled about 300 m of Karoo age sediments. Sands encountered at 2,734 - 2,737 m RT in this well have good visual porosity due to secondary

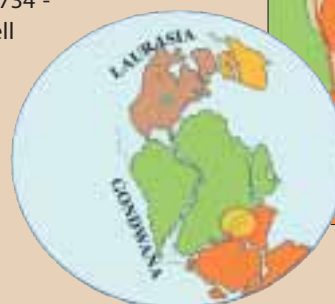


Plate tectonic development since Early Permian times.

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porosity development via quartz and feldspar dissolution.

All wells failed to reach crystalline basement, and they did not encounter commercial quantities of oil. However, sidewall cores taken within the Karroo section at Reith Bank-1 yielded streaming cut fluorescence and bleeding beads of oil over a significant depth interval in excess of 630 m. A production test within the Karroo flowed water at a rate of 1,200 bbls per day with 0.7 ppm of benzene indicating the likely presence of hydrocarbons close by. The healthy flow rate suggests reasonable permeability.

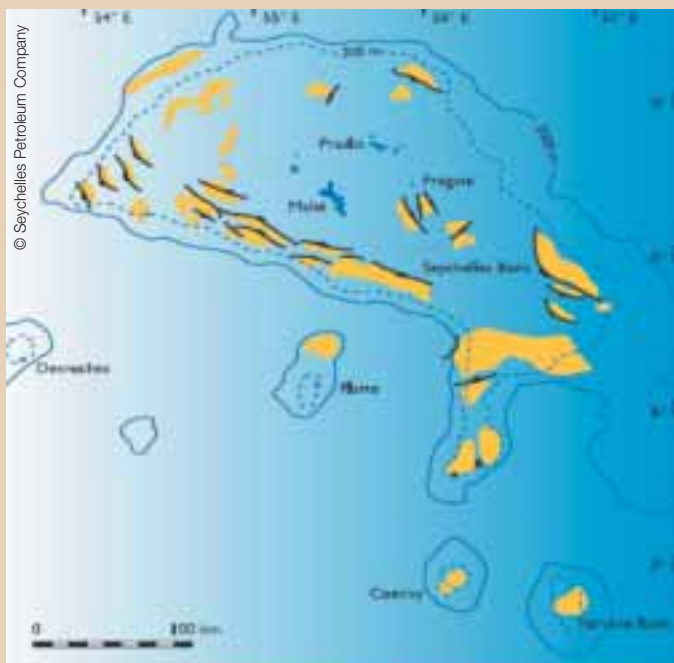
A fourth well, **Constant Bank-1** (1995) was drilled to the southeast by Enterprise but was TD'd after drilling 900 m of volcanics at a time when oil dipped to USD 9.0 a barrel. A similar (400 m thick) layer of basalt, interpreted to be of the same age (Late Cretaceous/Early Tertiary?), was drilled in the Owen Bank-1 well. Volcanics of this age also occur in Seagull Shoals-1, but are significantly thinner. Subsequent VSP work suggests that the volcanics in Constant Bank-1 were ~1270 m thick and that sediments akin to those found in the Amoco wells also exist in the East.

In Search for Good Data

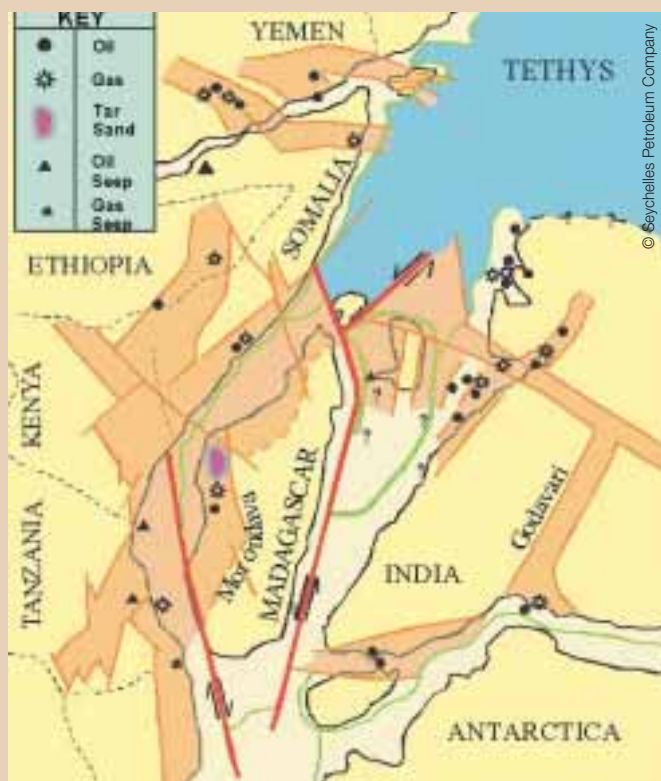
Approximately 24,000 kilometres of 2D seismic data was acquired over the Seychelles Plateau between 1980 and 1996. During this period of active exploration a number of airborne aeromagnetic surveys, marine gravity surveys, marine sniffer geochemical surveys and passive airborne UV fluorescence were also acquired.

Unfortunately, in the case of the seismic, there is no digital seismic database of migrated seismic records. Problems with archive field tapes and observer logs make reprocessing a major undertaking. In many cases only old paper sections are available for scanning. Equally frustrating is the fact that the majority of the acquisition is of 80's vintage and data was acquired with short cables and low volume sources in almost all cases. Consequently, much of the existing seismic data is considered to be acquisition constrained.

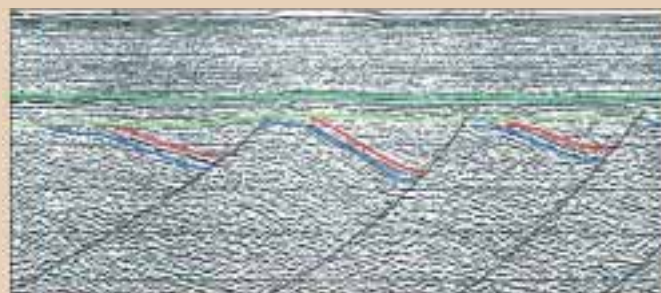
There is no question that modern seismic data is required for



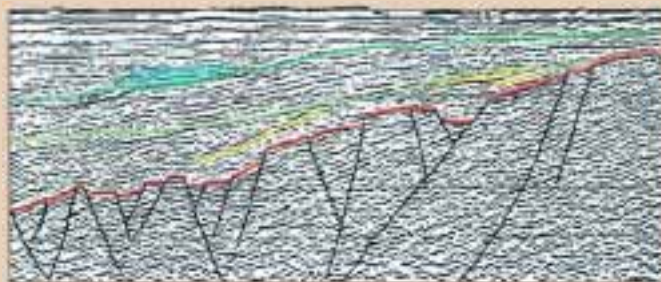
Prospects and leads in the Seychelles Plateau. Seismic acquired this year will hopefully mature some of them to be drilled.



Tectonic framework reconstruction 225 Ma.



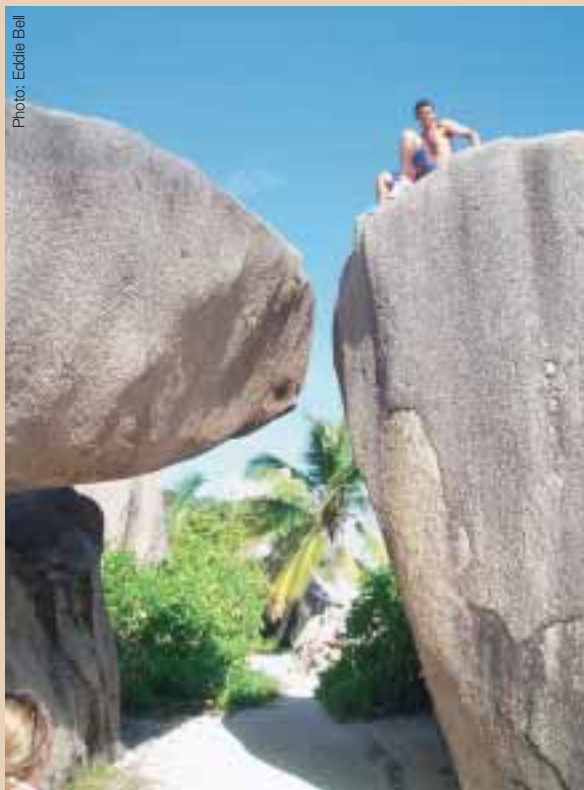
Stratigraphic pinchout/reef/tilted Fault block along the southern flank.



Stratigraphic pinchout/reef/tilted Fault block along the southern flank.



Wrench Fault anticline in deep water.



Granites exposed onshore give no clues to the offshore petroleum potential.

Seychelles as currently available seismic is challenged by the presence of a thick near surface carbonate layer, an approximately 900 m thick layer of basalts that were extruded during the Deccan Trap thermal event and that are probably present over a good portion of the plateau area.

An Oil Prone Petroleum System

Based on the work conducted to-date, including the results of 4 wells, and the results of recent geochemical analyses conducted by PetroQuest International, the Upper Triassic/Lower Jurassic petroleum system should be no longer in dispute.

We have, first of all, shown the presence of oil generative source rock intervals. An oil prone source rock system with TOC's in excess of 6% (now partially depleted) of Upper Triassic to Lower Jurassic age underlies and flanks the Seychelles Plateau. Geochemical analyses of extracts of locally derived migrant oil have been tied via isotopes and biomarker analyses to source rocks penetrated in the wells.

Oil shows, including head space gas, and migrant oils recovered in wells have been typed to source rocks penetrated in these same wells.

Peak oil generation commenced in the Cretaceous and continues to the present day at burial depths in excess of 2000 m. Beads of oil have been observed weeping from side-wall cores taken from good reservoir rocks of Karoo age in the Reith Bank-1 well and good oil shows including streaming cut fluorescence have been observed over an interval in excess of 630m in the same well.

A source kitchen area with a fetch extending 10,000's of km² has been recognised immediately down-dip from the PetroQuest permits, and conduits out of this kitchen area are observed as both carrier beds and clearly defined normal faults into the PetroQuest acreage. Migration is therefore not an issue.

A classic and robust source system at optimal maturity available to charge the vast structures seen on the seismic within and on the flanks of the Seychelles Plateau has therefore been defined.

As for reservoir, some 1,980 m of sandstones were penetrated in Reith Bank 1. The main Karoo Supergroup consists of non-marine multi-storey channel sands of Upper Triassic/ Lower Jurassic age. Sandstones with porosities in excess of 20% and good permeabilities have been recorded from log analyses and core data. Individual sand units in excess of 25 m are present in the Karoo interval in both the Seagull Shoals-1 and Reith Bank-1 wells.

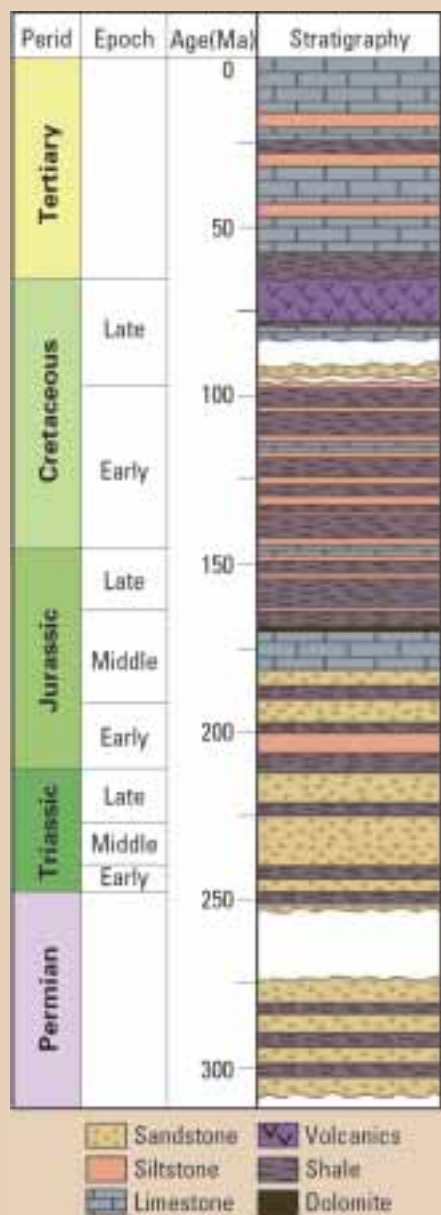
Seal is provided by regionally extensive 'drift marine shales' which have been penetrated in Owen Bank-1. A base seal is identifiable and mappable on seismic data and is inferred over the PetroQuest acreage position.

A significant number of structural closures have been mapped by Texaco (the previous operator) at the base of the drift shales over the PetroQuest lease area.

Consequently, we look upon the Seychelles Plateau as a high grade, oil prone frontier basin.

Next Phase on its Way

The next active phase of petroleum exploration on the Seychelles Plateau is now underway. During May, SeaBird Exploration operated a 2D seismic survey totaling more than 2200 km with the seismic vessel Geomarine. The program covers a number of huge structures and may prove up several drillable prospects, some of which may have multi billion barrel oil potential, in both shallow and deep water down to 2000 m.



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Generalized stratigraphy of the offshore basins.